



Valley Clean Air Now Comments on CARB Mobile Source Strategy Discussion Draft

Thank you for the opportunity to comment on the Mobile Source Strategy Discussion Draft. The draft document outlines the numerous programs to enforce current light duty emissions standards and to further reduce future fleet emissions. We commend CARB for their continued progress on this issue.

However, one significant source of criteria pollutants including ground-level ozone precursors is not mentioned in this document, namely light-duty vehicles in regular use that have fallen out of registration. **Acknowledging in the Mobile Source Plan this currently unregulated yet significant source would be a big step toward an eventual solution to this longstanding and well-known issue.**

The Problem – The Dirtiest Cars Aren’t Counted

Given the recent global attention to emissions inconsistencies between laboratory testing and on-road results, there is a clear need to address this air quality issue which disproportionately affects disadvantaged communities where unregistered, high-emitting vehicles appear to be most prevalent. Revising the existing emissions models using direct testing of vehicles as opposed to calculations based on estimates could aid the state in creating large and immediate improvements in air quality for these communities. This quote from Thomas Cahill’s recent Sacramento Bee op-ed “Vehicle testing has Achilles’ heel” is a reminder of how long the air quality models have been skewed by the data imbalance caused by unregistered vehicles being excluded from the emissions inventory:

“In 1987, a research team used a freeway tunnel in Van Nuys to compare the predicted auto emissions from ARB dynamometer laboratory tests to real-world conditions. The tunnel tests gave carbon monoxide and hydrocarbon emission values 300 percent and 400 percent higher than expected on the basis of dynamometer tests.

The on-road tests identified a sad result – most California cars were clean, but a small number of “gross emitters” were generating two-thirds of all highway pollution. These cars are modified vehicles with bypassed catalytic converters, old throw-away cars, unregistered cars, some with fake smog-check clearances from shady service stations, and the like.”

Based on Valley CAN’s direct experience with nearly 40,000 vehicles in the San Joaquin Valley since 2011, we can demonstrate that there are significant numbers of light-duty vehicles concentrated in disadvantaged communities, where criteria pollutant levels are highest, that have dropped out of registration and are emitting ever-increasing levels of NO_x, CO and HC. These cars are likely 1995 and older, with much higher criteria pollutant emissions than newer OBDII and LEVII vehicles.



Unregistered Cars Drive a Lot, and Emit a Lot

Valley Clean Air Now operates the Tune In & Tune Up (TI&TU) program on behalf of the San Joaquin Valley Air Pollution Control District. Recent TI&TU data illustrates the prevalence and impact of unregistered cars in the San Joaquin Valley. During CY 2014, 9,600 vehicles attended TI&TU, 46 percent of which were unregistered at the time of the event. Out of these unregistered vehicles, 2,931 failed a BAR-97 two-speed idle emissions screen and were given a voucher for up to \$850 in smog repairs.

Valley CAN asked Jeffrey Williams, professor in the UC Davis Agriculture and Resource Economics Department to study the repair data from those unregistered vehicles that subsequently appeared at a STAR Test & Repair facility, and calculate how far these unregistered, high-emitting vehicles being driven as well as the emissions reductions resulting from the repairs. Dr. Williams provided the following in response:

"Among these 2,931 unregistered, high-emitting cars, 1,459 resulted in repairs in which the reduction in emissions can be easily measured. (Several hundred other vehicles were repaired, but the calculations are not easy, because the tests were not ASM or because several testing facilities were involved, including Test Only facilities.)

"Mileage calculations could be made for 1,310 vehicles (another 25 had dubious odometer readings, principally because of the 5-digit odometers on the oldest vehicles). Of these 1,310 vehicles, 223 were classified as a Gross Polluter at the start of a sequence of Fails with no intervening Pass and again subsequent to the TI&TU event. These 223 vehicles are plotted in the first of the attached graphs. (The equivalent graph for all 1,310 vehicles with a fail before and after the TI&TU event looks very similar). Some of these gross-polluting vehicles had been driven very little, even over spans as long as three or four years, as would be hoped. However, two-thirds had been driven over 500 miles. Twenty-nine of the 223 (150 of the 1,310) had been driven at least 5,000 miles. The answer to the key question is thus: **Unregistered, high-emitting vehicles are on the road in substantial numbers for substantial miles.**

"The calculation scrolls backwards in the smog check histories from the observation made subsequent to the TI&TU event. If the first of the previous smog checks was a Pass, it is ambiguous how long the vehicle has been out of compliance, anywhere from the day after that previous pass to the day before the TI&TU event. If the first of the previous smog checks was some type of fail, it can be presumed that the vehicle was out of compliance at least during that whole interval (if not from even earlier). That logic extends further backward through a sequence of failed tests until a pass is reached. The difference in the beginning and ending dates in this sequence, and more importantly, differences in odometer readings, reveals whether these vehicles have been driven.

"The second of the attached graphs shows the reduction in emissions among the 408 Gross Polluters among the 1,457 vehicles for which emissions can be readily computed; the third graph

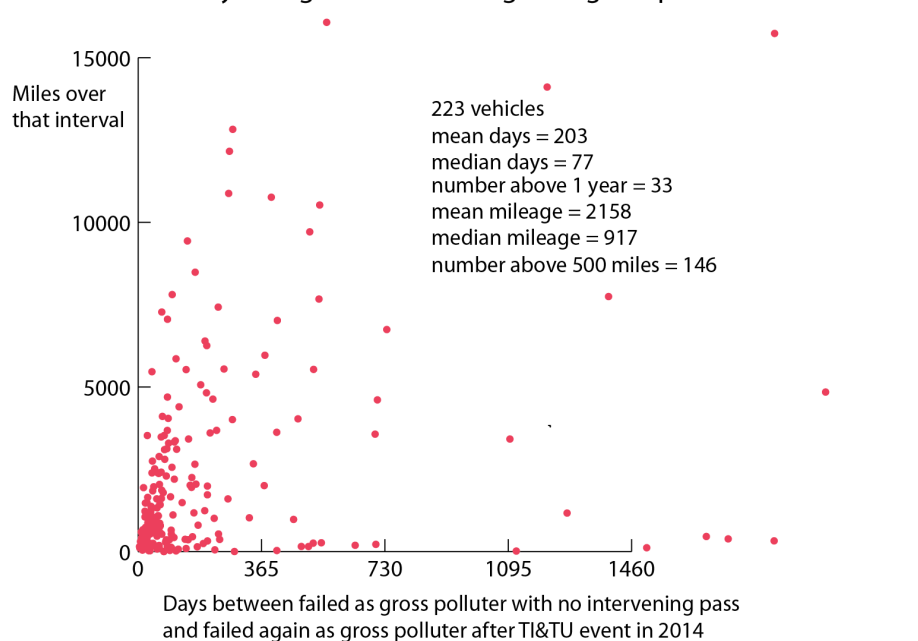


shows the reductions among the 1,049 who simply failed. The reductions in emissions of the group of vehicles that failed but not at the Gross Polluter level are generally smaller but are still very substantial given the higher cut points for older vehicles. (Those few that show an increase in emissions due to the repair are mostly vehicles that failed because of tampering.)

“Summed across all these 1,457 vehicles, the reduction in the sum of NO_x, HC, plus CO was 13,821 grams/mile. With application of the convention that vehicles travel 10,000 miles per year (27 miles/day), the reduction in emissions from these vehicles is 0.4 tons per day. (Because these are older vehicles, their miles/day average is less than the convention, although the average rate for the 223 unambiguous gross polluters is 21 miles/day.) Perhaps more relevant are the emissions of these vehicles before the repairs, which total 0.6 tons/day (0.1 ton/day if CO is not included). **These are significant emissions reductions – to provide some context, repairing these unregistered vehicles is roughly comparable to retiring newer vehicles.**

“None of these emissions from unregistered vehicles have been included in air quality models, but they are picked up by air quality monitoring stations because the vehicles are being driven. The percentage of unregistered vehicles has been consistently high at TI&TU events, with some individual events exceeding 55 percent unregistered. Why the owners of the vehicles come to a TI&TU event is itself an interesting subject for study, but the steady numbers over the years suggests that these owners represent only a small part of this hidden category of unregistered, high-emitting vehicles.”

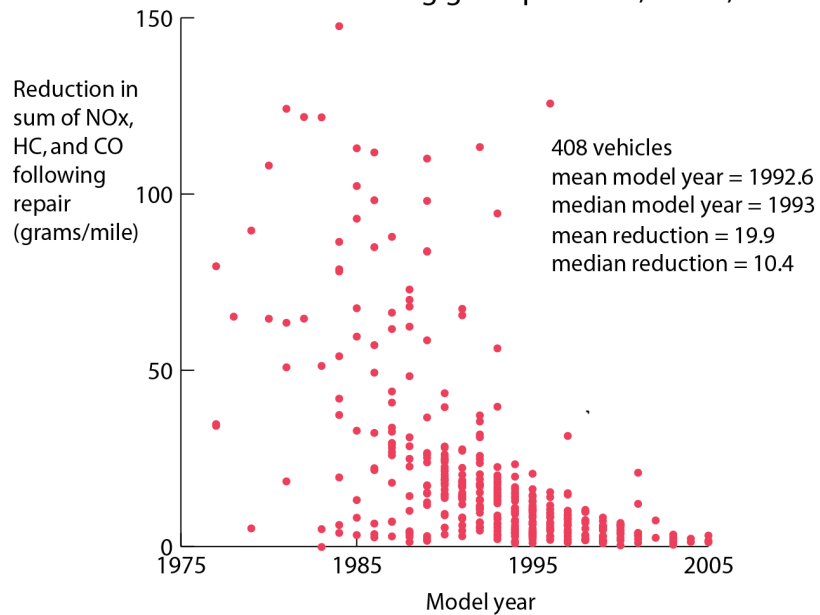
Miles driven by unregistered unambiguous gross polluters





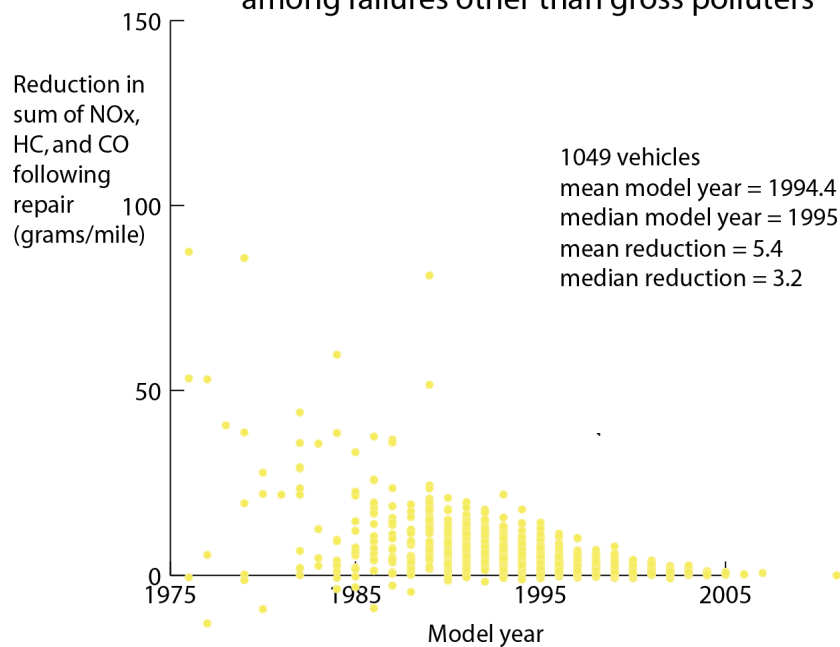
Improvements through repairs

among gross polluters, TU&TI, 2014



Improvements through repairs

among failures other than gross polluters





The Source of Unregistered Cars

These results clearly demonstrate the predictable reaction to the inevitable emissions equipment failures in high-mileage older cars typically driven by low-income motorists. Breakdown of the catalytic converter and/or the O2 sensor results in a smog check failure, which necessitates expensive emissions repairs in order to reregister the car. Low-income individuals, often unable to pay for repairs, see no choice but to let their vehicle fall out of registration. Perhaps the owners hope to find the funds in a few months, but perhaps also, with time, they become accustomed to driving an unregistered vehicle. Once the vehicle drops out of the registration database, the state no longer accounts for the emissions of that vehicle, leaving a huge hole in the state's emissions tracking.

Based on the striking uniformity of the rate of unregistered cars throughout all eight Valley counties in both rural and urban areas, we predict a similar rate of unregistered cars with unreported emissions in disadvantaged communities statewide as defined by CalEnviroScreen 2.0 and SB535.

Better Understanding of Unregistered Cars Should Lead to Solutions

Determining the actual emissions status of California's entire vehicle fleet is an opportunity to find "new" sources of light duty criteria emissions reductions. We urge CARB staff to consider how to include in the Mobile Source Plan this significant source of criteria emissions from unregistered vehicles that are currently not addressed. It makes sense to go after these relatively cheap and easy emissions reductions first, which will create real-time improvements in disadvantaged communities. The districts that likely have the largest number of unregistered cars and thus the largest potential reductions are the districts with the majority of SB535 disadvantaged communities: South Coast AQMD, San Joaquin Valley APCD, Bay Area AQMD, Monterey Bay Unified APCD, Sacramento Metro AQMD, and San Diego County APCD.

Thank you for your consideration. We would also like to thank the San Joaquin Valley Air Pollution Control District for their ongoing support of Tune In & Tune Up, as well as Jeffrey Williams, Ph.D. for his time and unique expertise in analyzing vehicle emissions data. We are happy to further discuss our results and related conclusions. Please contact Tom Knox, Executive Director at tom.knox@valleycan.org or (916) 273-8886.